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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,587	01/10/2002	Steven Zettel	0499-036	6331

7590 12/08/2005  
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EXAMINER

TRAN, HIEN THI

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 12/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/043,587	<b>Applicant(s)</b> ZETTEL, STEVEN	
	<b>Examiner</b> Hien Tran	<b>Art Unit</b> 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 September 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-6,8-16,18 and 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-6,8-16,18 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities:  
  
On page 7, line 17 --insulation-- should be inserted before “material”.  
  
Appropriate correction is required.
2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:  
  
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention..
4. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 1, 4-6, 8-16, 18, 21 are rejected under 35 U.S.C. 112, first and second paragraphs, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claim 1, line 5 it is unclear as to what is intended by “dams” and where they are disclosed in the specification and shown in the drawings. See claims 5, 16, 18 likewise

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In claim 14, line 2 the dependency of the claim should be amended since claim 2 has been cancelled (see claim 15 likewise); in line 2 "said wire" has no clear antecedent basis.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. The art area applicable to the instant invention is that of catalytic converter.

One of ordinary skill in this art is considered to have at least a B.S. degree, with additional education in the field and at least 5 years practical experience working in the art; is aware of the state of the art as shown by the references of record, to include those cited by applicants and the examiner (*ESSO Research & Engineering V Kahn & Co*, 183 USPQ 582 1974) and who is presumed to know something about the art apart from what references alone teach (*In re Bode*, 193 USPQ 12, (16) CCPA 1977); and who is motivated by economics to depart from the prior art to reduce costs consistent with the desired product characteristics. *In re*

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*Clinton* 188 USPQ 365, 367 (CCPA 1976) and *In re Thompson* 192 USPQ 275, 277 (CCPA 1976).

9. Claims 1, 4-6, 8-16, 18, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al (EP 1,138,892) in view of Harding (6,017,498).

With respect to claims 1, 4-5, 14, 16, 18, 21, Yamada et al discloses a support system for a catalytic monolith and a method of providing the support system, comprising:

heat resistant wire meshes 20 arranged to provide cushioning support and gaseous sealing for the catalytic monolith 14; and

insulation material comprising non-intumescent material and arranged integral with the wire mesh to provide thermal insulation gaseous sealing for the catalytic monolith 14 (Fig. 6, sections 0048-0051).

The apparatus and method of Yamada et al are substantially the same as that of the instant claims, but fail to disclose whether the wire mesh may be knitted and crimped into a (multi-) herringbone configuration as claimed.

However, Fig. 6 of Yamada et al shows that the wire meshes 20 have wave structures with corrugations which are considered as dams that block and direct gas flow. Yamada et al is silent as to how to form the wave structures for the wire meshes. Furthermore, it should be noted that the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, the wave structures of the wire meshes of Yamada et al meet the instant claims.

In any event, Harding discloses the conventionality of providing a support structure comprising wire mesh layers being knitted and having crimped corrugations.

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It would have been obvious to one having ordinary skill in the art to alternately use the crimping/knitting method for forming the wire mesh with corrugations as taught by Harding in the apparatus and method of Yamada et al, if not inherent therein, on the basis of its suitability for the intended use as a matter of obvious design choice and since such technique is known in the art and no cause for patentability here.

With respect to the specific herringbone pattern of the corrugations of the knitted wire mesh, note that the specific pattern/shape of the corrugations of the knitted wire mesh is not considered to confer patentability to the claim. It would have been an obvious matter of design choice to select an appropriate shape/pattern for the corrugations of the knitted wire mesh, since such a modification would have involved a mere change in the shape of a component. A change in shape is generally recognized as being within the level of ordinary skill in the art, absence showing any unexpected results. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

With respect to claims 8, 11, 13, Yamada et al discloses that the insulation material is a non-intumescent material, such as ceramic fibers (sections 0021, 0043)

With respect to claims 9, 12, since the support system of Yamada et al is the same as that of the instant claims, it possesses the same properties thereof and therefore meets the instant claims.

With respect to claim 10, although Yamada et al is silent as to the specific percentage of the intumescent material as claimed, Yamada et al discloses that the insulation material comprises intumescent material without any vermiculite or with a small amount of vermiculite (sections 0021, 0043).

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Note that the specific percentage of intumescent material is not considered to confer patentability to the claim. The precise percentage of the intumescent material would have been considered a result effective variable by one having ordinary skill in the art. As such, without more, the claimed percentage cannot be considered "critical". Accordingly, one having ordinary skill in the art would have routinely optimized the amount of intumescent material in the support system to obtain the desired insulation thereof. *In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980), and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

With respect to claims 6, 15, the apparatus of Yamada et al are substantially the same as that of the instant claims, but lacks an end seal.

However, Harding shows the conventionality of providing an end seal 38 proximal to a gas inlet and/or outlet of the catalytic monolith.

It would have been obvious to one having ordinary skill in the art to provide an end seal as taught by Harding in the apparatus of Yamada et al so as to block the hot exhaust gas from contacting the support material, thereby prevent the support material from erosion thereof.

10. Claims 1, 4-6, 8-16, 18, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Santiago et al (3,876,384) in view of Machida et al (5,866,079) and Harding (6,017,498).

With respect to claims 1, 4-6, 14-16, 18, 21, Santiago et al discloses a support system for a catalytic monolith and a method of providing the support system, comprising:

heat resistant wire meshes 8 arranged to provide cushioning support and gaseous sealing for the catalytic monolith 2; and

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insulation material comprising ceramic fibers and arranged integral with the wire mesh to provide thermal insulation and gaseous sealing for the catalytic monolith ( col. 2, line 40 to col. 4, line 5).

The apparatus and method of Santiago et al are substantially the same as that of the instant claims, but fail to disclose whether the insulation material may be non-intumescent material.

However, Machida et al discloses the conventionality of providing non-intumescent material as an insulation material.

It would have been obvious to one having ordinary skill in the art to alternately select non-intumescent material as the insulation material in the method and apparatus of Santiago et al, so as to maintain a constant compression characteristic during the practical temperature range of the catalytic converters and since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

The same comments with respect to Harding apply.

With respect to claims 8, 11, 13, Machida et al discloses that the insulation material is a non-intumescent material, such as ceramic fibers (col. 3, lines 54-55).

With respect to claims 9, 12, since the support system of Santiago et al as modified by Machida et al is the same as that of the instant claims, it possesses the same properties thereof and therefore meets the instant claims.

With respect to claim 10, the specific percentage of intumescent material is not considered to confer patentability to the claim. The precise percentage of the intumescent

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material would have been considered a result effective variable by one having ordinary skill in the art. As such, without more, the claimed percentage cannot be considered "critical".

Accordingly, one having ordinary skill in the art would have routinely optimized the amount of intumescent material in the support system to obtain the desired insulation thereof. *In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980), and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

#### ***Response to Arguments***

11. Applicant's arguments filed 9/26/05 have been fully considered but they are not persuasive.

Applicant argues that although Harding shows a knitted mesh and crimping, none of the crimping is shown as herringbone or multi-herringbone and provides raised portions that act as dams blocking and directing the flow of gas. Such contention is not persuasive as discussed in the 112 rejection above, the newly added phrases introduce new matter. Therefore, the difference between applicants' claim mesh and that of the prior art cannot be identified by the specification of the instant application.

Since the knitted wire mesh in the modified apparatus of Yamada et al or Santiago et al, includes corrugations which have crests and troughs and therefore can be considered as dams to block or direct gas flow. The different patterns, e.g. straight, chevron, herringbone, etc., of the corrugations are known in the art and selecting any pattern of the corrugations would have been obvious to one having ordinary skill in the art during routine experimentation and optimization of the system thereof.

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Furthermore, the specific pattern/shape of the corrugations of the knitted wire mesh is not considered to confer patentability to the claim. It would have been an obvious matter of design choice to select an appropriate shape/pattern for the corrugations of the knitted wire mesh, since such a modification would have involved a mere change in the shape of a component. A change in shape is generally recognized as being within the level of ordinary skill in the art, absence showing any unexpected results. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

### ***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Aoyama, Kennedy et al, Zettel, and Merry (5,686,039) are cited for showing state of the art.

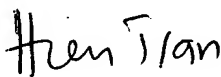
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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Tran whose telephone number is (571) 272-1454. The examiner can normally be reached on Tuesday-Friday from 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1454. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HT  
December 6, 2005

  
**Hien Tran**  
**Primary Examiner**  
**Art Unit 1764**